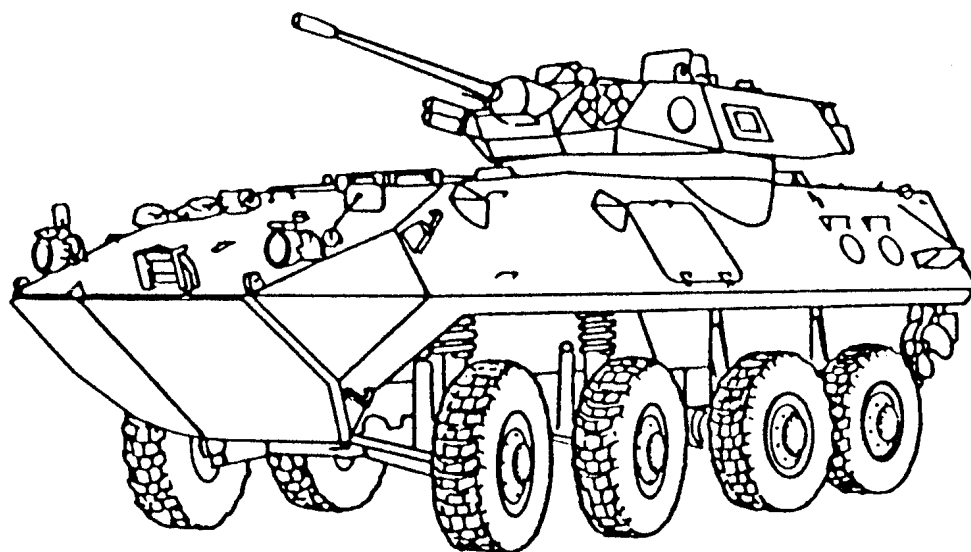


**OPERATOR'S TRAINING COURSE  
FOR  
PRECISION GUNNERY SYSTEM  
(PGS)**

**for**

**LIGHT ARMORED VEHICLE (LAV-25)**



JANUARY 1997

**FOR INFORMATION ON FIRST AID, REFER TO FM 21-11.**

## **BROWPADS**

### **WARNING**

**DO NOT** use browpads if foam is damaged. Failure to follow this warning may result in injury or blindness to personnel.

### **WARNING**

**Damaged browpad can cause injury or blindness to personnel.**

## **CABLE CONNECTORS**

### **WARNING**

**Ensure that vehicle MASTER SWITCH and turret power are OFF before connecting or disconnecting cables. Failure to follow this warning may result in injury or death to personnel if turret or 25 mm gun move suddenly.**

## **CGUN**

### **WARNING**

**DO NOT** aim or fire CGUN at personnel. The CGUN is an eye-safe (Class 1) laser device without restrictions, however, failure to follow this warning may result in injury to personnel.

## **OPERATION**

### **WARNING**

**Accidental firing of the 25 mm gun could cause injury or death. Ensure the weapon is clear prior to training.**

### **WARNING**

**The moving and operation of vehicle during practical exercises must be done under instructor's supervision.**

## **SYSTEM INSTALLATION AND REMOVAL**

### **WARNING**

**Ensure vehicle MASTER SWITCH and turret power are OFF before installing or removing PGS.**

### **WARNING**

**Ensure TURRET DRIVE LOCK is set to LOCKED position before installing or removing PGS.**

### **WARNING**

**Accidental firing of the 25 mm gun could cause injury or death. Ensure weapon is clear before training.**

### **WARNING**

**Perform ALL corrective action with vehicle MASTER SWITCH and turret power OFF. Damage could occur to PGS or vehicle or personnel could be injured if cables are connected or disconnected with MASTER SWITCH ON.**

## **TRANSCIVER UNIT**

### **WARNING**

**Transceiver unit has an eye-safety classification of 3A. During operation, DO NOT view the transceiver unit with an unaided eye for an extended period of time. DO NOT AT ANY TIME view the transceiver unit with an aided eye, i.e., optics which magnify from a distance less than 25 m.**

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## **PREFACE**

### **1-1. GENERAL.**

This training course is designed to provide a systematic approach to training Light Armored Vehicle (LAV-25) crews in the use of the Precision Gunnery System (PGS). Each lesson in the training course includes lesson plans, instructor notes, and viewgraphs. The use of the lesson package will allow the trainer to tailor lessons based on his unit's particular training needs. PGS training standards are discussed in detail to promote standardization in training with PGS. Proper application in the use of PGS will provide the commander with an effective training tool with which to train vehicles crews in precision gunnery skills.

### **1-2. PURPOSE.**

The purpose of this training course is to assist unit instructors in conducting PGS equipment training. Further objectives of this training course are to:

- a. ensure PGS equipment training is technically correct and meets both soldier's and unit's needs;
- b. employ training techniques which will reduce training time and conserve training resources;
- c. standardize PGS training to ensure it is compatible with other laser-based training systems employed by combat and combat support branches of the Marine Corps; and,
- d. reduce instructor preparation time by providing lesson plans, viewgraphs, training resources lists, and other training support information.

### **1-3. PGS EQUIPMENT TRAINING.**

- a. **Technical Proficiency and Standards.**
  - (1) The value of PGS training depends on users' proficiency with and understanding of the PGS equipment. It is possible to conduct precision gunnery training with a limited understanding of how PGS works; however, the cost of incomplete or inadequate training causes the following:
    - (a) **Reduced availability of PGS equipment.** Improper preoperation inspections and troubleshooting results in equipment damage or total equipment failure. The cost of repairing these damages places a large demand on the unit's maintenance systems both in dollars and manpower.

### 1-3. PGS EQUIPMENT TRAINING (Con't).

- (b) Reduced training effectiveness. The crew's inability to conduct proper preoperation checks or their inability to properly place PGS into operation reduces the accuracy of the overall system. This causes frustration among the crew and reduces the effectiveness of the training.
  - (c) Reduced training interest. PGS has the potential to make gunnery training exciting and interesting for the crew. An inoperable PGS results in boredom and frustration. Vehicle crews that practice skills that lead to improper mounting and alignment quickly become discouraged and lose interest in training.
- (2) Standardization of PGS training reduces or eliminates the problems covered above by focusing on two critical areas of training. These are:
  - (a) conducting thorough preoperational checks and inspections; and
  - (b) mounting and operating PGS properly.
- b. **Demonstrations.** Each period of training should begin with detailed demonstration of how to inspect, inventory, and conduct preoperational checks on PGS equipment. These checks are critical to successful PGS training and need to be stressed.
- c. **Practical Exercise.** Following the demonstration of preoperational checks and inspections, a detailed demonstration and practical exercise on how to mount and place PGS into operation follow. This portion of instruction also covers the alignment of PGS to the fire control system of the host vehicle. Emphasis must be placed on how to mount PGS in a manner which will keep it from being broken or damaged during training and not interfere with the operation of the weapon system.

### 1-4. UNIT TRAINING PROGRAM.

To achieve maximum benefit from PGS training, it must be integrated into the unit training program. However, specific training guidance as outlined in this training course must be followed by the instructors.

### 1-5. SCOPE OF INSTRUCTION.

The scope of instruction must be adjusted to meet the unit's specific training needs. Table 1 on page v identifies the lessons in the LAV-25 series PGS training course.

- a. **Equipment Required.** Each lesson has its own equipment requirements. Specific items needed to effectively conduct PGS training are outlined in detail in each lesson plan.

### 1-5. SCOPE OF INSTRUCTION (Con't).

- b. **Schedules.** Prior to scheduling any training, review the resource requirements and confirm training areas, and that PGS equipment are available on the dates required.
- c. **Instructor Selection.** Whenever possible, select instructors who are current in PGS training. If none are available, attempt to locate NCOs who have received training at a service school or academy.
- d. **Uniform and Equipment.** The uniform and equipment required for student personnel must be identified and complete. Specific equipment requirements are outlined in each lesson plan in the training course. PGS training uniform and equipment should be included on the unit's training schedule.

**Table 1. PGS Operator's Training Course.**

No.	Lesson	Time (H)	Personnel To Be Trained
1	Introduction to PGS	2.0	Crews, Instructors, TAVSC Personnel
2	Preparation of LAV-25	1.5	Crews, Instructors, TAVSC Personnel
3	Preparation for Operation (PMCS)	1.0	Crews, Instructors, TAVSC Personnel
4	Installation of PGS	3.0	Crews, Instructors, TAVSC Personnel
5	Startup and Alignment	3.0	Crews, Instructors, TAVSC Personnel
6	Operation of PGS	3.0	Crews, Instructors, TAVSC Personnel
7	Post Operational Procedures	1.0	Crews, Instructors, TAVSC Personnel
8	Troubleshooting	1.5	Crews, Instructors, TAVSC Personnel
9	Preparation of Targets	1.0	Crews, Instructors, TAVSC Personnel
10	Operation of Control Gun (CGUN)	1.0	Instructors, NCOs, TAVSC Personnel
11	Training Data Retrieval System (TDRS) Computer Unit	1.0	Instructors, NCOs, TAVSC Personnel
12	Setup	3.0	Instructors, NCOs, TAVSC Personnel
13	After Action Review (AAR) List	4.0	Instructors, NCOs, TAVSC Personnel
14	After Action Review (AAR) Map	5.0	Instructors, NCOs, TAVSC Personnel

**1-6. TRAINING GUIDANCE.**

- a. **Time and Date.** Immediately after scheduling the training, inform each instructor (and alternate) of the time and date of PGS training.
- b. **Location.** Training site requirements vary for the lessons being trained. Ensure that the proper ranges/training areas are available, serviceable, and satisfy the training lesson to be taught.
- c. **PGS Instructors.** It is important that the instructor assigned to teach PGS be fully qualified on PGS. To ensure that effective training is conducted, qualified instructors must be identified early in the planning and scheduling phase. Time and resources permitting, rehearsals of all instruction should be conducted.

**1-7. SAFETY.**

- a. **PGS General Safety Regulations.** General safety regulations as they apply to PGS are included in each lesson and are reinforced by both primary and assistant instructors.
- b. **Transceiver Laser Unit.** The PGS transceiver unit laser has been certified as eye-safe; nevertheless, some precautions are necessary. Do not fire the transceiver unit at personnel closer than nine meters or at vehicle optics or binoculars within 25 meters.
- c. **Blank Ammunition.** PGS does not require the use of blank ammunition. Units may elect to use blanks to provide additional realism in training. When using blanks, never fire them at personnel or equipment at close ranges. Enforce established blank-firing safety precautions.
- d. **Maneuver.** The use of PGS during force-on-force training may cause violent evasive maneuvers in response to NEAR MISS signals. Therefore, leaders must enforce appropriate safety regulations, especially around vehicles and equipment.

**1-8. LIST OF ABBREVIATIONS.**

AAR	After Action Review
BIT	Built-In Test
CB	Circuit Breaker
CDA	Control Display Assembly
CGUN	Control Gun
CLS	Contractor Logistics Support
CP	Control Panel
EXP.U	Expansion Unit
FCS	Fire Control System
FS	Firing System
GPS	Global Positioning System
HDDU	Hull Defilade Detector Unit

## 1-8. LIST OF ABBREVIATIONS (Con't).

HIRE (DIM36TH)	Hughes Infrared Equipment
IAW	In Accordance With
L/F	Left Front
L/R	Left Right
LAV	Light Armored Vehicle
LTID	Laser Target Interface Device
MILES	Multiple Integrated Laser Engagement System
NMC	Not Mission Capable
PDA	Power Distribution Assembly
PGS	Precision Gunnery System
PMCS	Preventive Maintenance Checks and Services
R/F	Right Front
R/L	Right Left
RDU	Retro Detector Unit
RSI	Remote System Interface
TAMMS	The Army Management System
TAVSC	Training Audio Visual Support Center
TBOS	Tracer, Burst, Obscuration Simulator
TBOS-DUD	Tracer Burst Obscuration Simulator Drive Unit Duel
TBOS-EU	Tracer Burst Obscuration Simulator Eyepiece Unit
TBOS-VM	Tracer Burst Obscuration Simulator Video Mixer
TCU	Target Computer Unit
TDRS	Training Data Retrieval System
TOW	Tube-Launched, Optically-Tracked, Wire-Guided
TS	Target System
TU	Transceiver Unit
TWGSS	Tank Weapon Gunnery Simulation System
VIU	Vehicle Interface Unit